



ATTACHMENT D
Amendments to the Claims

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This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method of forming a material ~~capable of being applied for application~~ to a surface, ~~the said method including comprising~~ the steps of:
 - (a) providing gel precursors ~~capable of reacting to form a gel;~~
 - (b) reacting the precursors together to form ~~the a~~ gel;
 - (c) adding a particulate material to the gel to form a mixture, the particulate material being capable of chemically bonding with the gel; and
 - (d) chemically treating the mixture such that a modified gel is formed in which the particulate material is bound to the gel, ~~and wherein~~ the modified gel is ~~capable of forming a surface which is~~ chemically hydrophobic and has a surface roughness ~~which that~~ physically enhances the surface hydrophobicity, such that water has a contact angle on the surface of at least 150°.
2. (Currently Amended) The method according to claim 1 wherein the modified gel ~~is capable of forming a hydrophobic surface on which water~~ has a contact angle with water of at least 155°.
3. (Currently Amended) The method according to claim 1 wherein the modified gel ~~is capable of forming a hydrophobic surface on which water~~ has a contact angle with water of at least 160°.
4. (Currently Amended) The method according to claim 1 wherein the modified gel ~~is capable of forming a hydrophobic surface on which water~~ has a contact angle with water of at least 165°.

5. (Previously Presented) The method according to claim 1 wherein the precursors provided in step (a) include at least water, a solvent, and a metal alkoxide.
6. (Previously Presented) The method according to claim 5 wherein the solvent comprises an alcohol.
7. (Currently Amended) The method according to claim 6 wherein the alcohol is selected from the ~~following group~~ consisting of: methanol; ethanol; isopropanol; ~~and~~ and butanol.
8. (Currently Amended) The method according to claim 5 wherein the solvent is selected from ~~a~~ the group comprising ~~consisting of~~: hexane; ~~and~~ and diethyl ether.
9. (Currently Amended) The method according to claim 5 wherein the metal alkoxide is selected from the ~~following group~~ group consisting of tetramethoxysilane; tetraethoxysilane; titanium tetraisopropoxide; titanium tetrameahoxide; titanium tetraethoxide; titanium tetrabutoxide; ~~and~~ and zirconium n-butoxide.
10. (Previously Presented) The method according to claim 1 wherein step (b) of reacting the precursors together comprises refluxing the precursors for an extended period.
11. (Previously Presented) The method according to claim 1 wherein the particulate material comprises particles having substantially equal diameters.
12. (Previously Presented) The method according to claim 1 wherein the particulate material comprises particles having a spectrum of diameters.
13. (Previously Presented) The method according to claim 11 wherein at least some of the particles have diameters within a range from 1 nanometer to 1 micrometer.

14. (Previously Presented) The method according to claim 11 wherein at least some of the particles have diameters within a range from 1 nanometer to 100 nanometers.

15. (Original) The method according to claim 11 wherein substantially all particles have diameters within a range from 1 nanometer to 500 micrometers.

16. (Previously Presented) The method according to claim 11 wherein the particles have a primary particle diameter in a range from 5 nanometers to 50 nanometers.

17. (Previously Presented) The method according to claim 11 wherein the particles have an average particle size in a range from 5 nanometers to 20 nanometers.

18. (Previously Presented) The method according to claim 11 wherein the average particle size is about 15 nanometers.

19. (Currently Amended) The method according to claim 1 ~~wherein the method includes a further~~ comprising a step prior to step (d), the further step comprising mixing a polymer component into the gel, wherein the polymer component is suitable for bonding with the gel and particulate material and wherein said step (d) comprises bonding the polymer component ~~being capable of bonding with the gel and particulate material during step (d).~~

20. (Original) The method according to claim 19 wherein the polymer material is either hydrophobic or rendered hydrophobic during step (d).

21. (Currently Amended) The method according to claim 1 ~~wherein the method includes a further~~ comprising a step prior to step (d), the further step comprising adding a surface modifier to the gel, ~~the surface modifier being capable of increasing~~ wherein the addition of said surface modifier increases the intrinsic chemical hydrophobicity of a hydrophobic surface formed with the modified gel.

22. (Original) The method according to claim 21 wherein the surface modifier further enhances bonding between the particulate material and the gel.

23. (Previously Presented) The method according to claim 21 wherein the surface modifier is a compound including one or more hydrophobic groups and one or more condensation cure groups.

24. (Currently Amended) The method according to claim 23 wherein the one or more hydrophobic groups include one or more ~~of~~selected from the following groups: group consisting of methyl-, ethyl-, vinyl-, and, and trifluoropropyl.

25. (Currently Amended) The method according to claim 23 wherein the one or more condensation cure groups include one or more ~~of the following groups:~~selected from the group consisting of acetoxyl-, enoxyl-, oxime-, alkoxy-, and, and amine.

26. (Currently Amended) The method according to claim 1 wherein the particulate material comprises a flame-hydrolyzed silica powder, and the gel comprises a silicon dioxide gel.

27. (Previously Presented) The method according to claim 19 wherein the polymer component comprises polydimethylsiloxane (PDMS) .

28. (Currently Amended) (Currently Amended) A method of forming a coating on a substrate, said method comprising the steps of:

- forming a modified gel in accordance with the method of claim 1;
- applying the modified gel to the substrate; and
- chemically treating the applied modified gel such that a coating is formed on the substrate, wherein the coating ~~having~~has a surface ~~which~~that is chemically hydrophobic and ~~has~~ a surface roughness ~~which~~that physically enhances the surface hydrophobicity, such that water forms a contact angle of at least 150°.

29. (Original) The method according to claim 28 wherein the hydrophobic surface of the coating is such that water forms a contact angle on it of at least 155°.
30. (Original) The method according to claim 28 wherein the hydrophobic surface is such that water forms a contact angle on it of at least 160°.
31. (Original) The method according to claim 28 wherein the hydrophobic surface is such that water forms a contact angle on it of at least 165°.
32. (Previously Presented) The method according to claim 1 wherein the modified gel is in the form of a slurry.
33. (Currently Amended) The method according to claim 28 wherein the step of applying the modified gel to the substrate comprises using one of the following techniques: spin coating; dip coating; ~~or~~ or spray coating.
34. (Previously Presented) The method according to claim 28 wherein the step of treating the mixture comprises drying the applied modified gel such that a solid coating is formed.
35. (Original) The method according to claim 34 wherein the step of drying includes a step of heating the applied modified gel to a temperature which is sufficient to evaporate any solvents.
36. (Previously Presented) The method according to claim 34 wherein the step of drying the coating comprises heating the coating to a temperature in the range from 120° to 400°C.
37. (Previously Presented) A modified gel produced by a method in accordance with claim 1.

38. (Previously Presented) An object having a surface, at least a portion of which is coated with a hydrophobic coating formed from a modified gel made by a method in accordance with claim 1.

39. (Previously Presented) A hydrophobic coating produced by a method in accordance with claim 28.

40. (Previously Presented) An object having a surface, at least a portion of which is coated with a hydrophobic coating produced by a method in accordance with claims 28.